



# National Security Report

Background and Perspective on Important National Security and Defense Policy Issues,

Written and Produced by

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Chairman, House National Security Committee

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## From the Chairman...

Since the Administration relaxed its policy in 1996 on supercomputer exports, there have been numerous revelations about the unauthorized shipment or diversion of U.S.-made supercomputers to countries and entities of proliferation concern. We have learned that U.S. supercomputers have been inappropriately shipped to military research facilities in China and nuclear weapons laboratories in Russia. By the admission of Russian officials, these computers will be used to help maintain Russia's nuclear weapons stockpile.



More recent press stories also indicate that an additional 16 U.S.-made high performance computers were illegally ob-

## Supercomputers

tained by a Russian nuclear weapons laboratory using European middlemen in violation of U.S. export control regulations.

The true impact of these transfers on the ability of other countries to develop weapons that pose a threat to U.S. interests may never be fully known. However, it seems to me that it is in our national interest to find out.

I am concerned that these unauthorized transfers have been facilitated by the Administration's relaxation of supercomputer export controls. Under this relaxed policy, the Administration did not know that a U.S.-manufactured supercomputer had been exported to one of Russia's premier nuclear weapons laboratories, until the Russian Minister of

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## Sales or Security? Supercomputers and Export Controls

The system for controlling U.S. exports of sensitive "dual-use" technologies, i.e., those which can be used for either military or civilian purposes, has been relaxed substantially over the past five years. Many restrictions put into effect during the Cold War have been eased with the collapse of the Soviet Union and in the pursuit of increased international trade and U.S. exports. For example, the Administration has liberalized export controls on commercial jet engine "hot sections", commercial communications satellites, and encryption software. Most significantly, the Administration has eased high performance computer (commonly referred to as "supercomputers") export restrictions on two separate occasions.

Supercomputers can be used to develop advanced conventional munitions and refine the capabilities of nuclear weapons in the absence of nuclear testing. Concern over the export of U.S.-origin high-performance computing capabilities to countries of proliferation concern has been growing in light of press reports that such computers were inappropriately shipped without the required export licenses to military-related facilities in Russia and China.

In September 1995, House National Security Committee (HNSC) Chairman Floyd Spence, then-Ranking Member Ronald Dellums, and several other members of the

Committee on National Security co-signed a letter to President Clinton, stating that "the acquisition of supercomputers is essential to the design and testing of high-performance weapons systems across the entire defense spectrum." The letter noted that the United States "still commands a significant lead in the field of supercomputers, so the ability of foreign governments to find equivalent technology elsewhere is minimal." The letter also warned against "pressure to make sales that would place commercial gain ahead of national security" and asked the Clinton Administration to forestall any further decontrol decision until the national security implications of such a decision could be studied.

Nevertheless, in October 1995, the Administration announced its decision to decontrol supercomputers for the second time in four years. High-performance computers with a computing capability of between 2,000 and 7,000 Millions of Theoretical Operations Per Second (MTOPS), were allowed to be exported license-free to civilian users, for non-military purposes, in Russia, China, and other countries of proliferation concern. This shifted the burden of determining who is a civilian user from the government — which previously had to license such exports — to the exporter seeking to make the sale. The new policy obviously placed a premium on ensuring that

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Photo courtesy of Intel Corporation

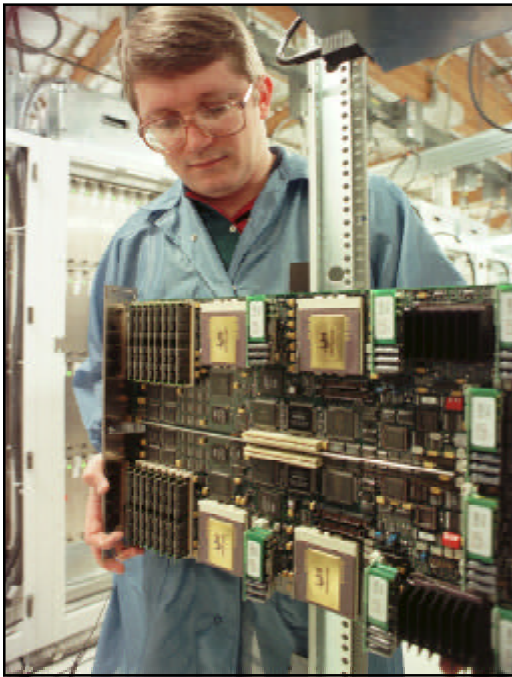


Photo courtesy of Intel Corporation

any exports were not diverted to military facilities or uses. Unfortunately, the new policy also allowed the exporter to be the final (and only) arbiter of whether the end-user in a foreign country was legitimate.

This decontrol decision was based in large part on the results of a study conducted for the Department of Defense and Department of Commerce by Stanford University's Center for International Security and Arms Control. The study, "An Examination of High-Performance Computing Export Control Policy in the 1990s," concluded that many computing systems are now "uncontrollable" and that efforts to establish controls on them would likely be "problematic and ineffective." However, the study conceded that "it is all but inevitable that some day, if it has not already happened, adversaries will use American-made computers in the design or operation of a system that harms U.S. citizens and property."

In April 1997, in light of reports that Silicon Graphics, Inc. (a U.S. computer company based in California) had shipped two supercomputers without a license to a Russian nuclear weapons research laboratory (Chelyabinsk-70), Representatives Spence and Dellums again wrote to President Clinton urging the Administration to refrain from any further decontrol. In response, the President noted, "I am not con-

templating further revisions to our computer export control policy at this time" and gave his assurance that "we will take the steps necessary to protect our national security and nonproliferation interests."

Testifying before the HNSC Subcommittee on Procurement on April 15, 1997, William Reinsch, Under Secretary of Commerce for Export Administration, stated that 46 U.S. supercomputers had been transferred to China between January 1996 and March 1997. He raised this total to 47 in subsequent Senate testimony. Press accounts in June 1997 indicated that China was possibly in possession of "hundreds" of U.S. supercomputers.

The Chinese Foreign Ministry has repeatedly denied that U.S. supercomputers have been diverted to military use. In September 1997, press reports indicated that China had agreed to return a U.S. supercomputer that was diverted to the Changsha Institute of Science and Technology — an institute run by the Chinese military. According to Secretary Reinsch, who testified before the HNSC on November 13, 1997, this machine was returned to the United States on November 9, 1997.

The Administration has pointed to the return of this computer as indicative of a successful U.S. policy. In an October 20, 1997 letter to Chairman Spence, the President's National Security Advisor, Samuel Berger, stated that "our policy has not failed, but is, in fact, successful." Nevertheless, Russia has reportedly refused to return the U.S. supercomputers that it illicitly acquired. In fact, press reports indicate that not only is one of these computers "missing" and possibly diverted to Iran, but that Russia has twice refused to allow the U.S. government access to these computers. Regardless, a more fundamental question remains: can U.S. policy truly be considered a "success" when sophisticated computers with national security implications are transferred without the necessary export licenses, without prior governmental knowledge or review, and when the U.S. government is forced to ask the recipient country to return them?

Additional press reports of illicit computer transfers raise questions about the pervasiveness of this serious problem. For example, the *New York Times* reported in October 1997 that the Russian nuclear weapons laboratory at Arzamas-16 had secretly obtained 16 U.S.-made IBM high-performance computers through European middlemen in contravention of U.S. export control regulations.

In spite of this history, a second study conducted for the Departments of Commerce and Defense by Stanford's Center for International Security and Arms Control is expected to call for further decontrols on supercomputers. Secretary Reinsch confirmed in his November 13, 1997 testimony before the HNSC that the President is likely to announce a decision shortly on further decontrols. A January 1998 majority report of the Senate Subcommittee on International Security, Proliferation, and Federal Services stated that the relaxation of export controls on supercomputers has led to a situation where the United States is contributing to the proliferation problem rather than the solution, by exporting technologies that aid in the development of nuclear and other weapons. The report concluded that, "nations which threaten the security interests of the United States should not be armed by America, nor should America help them arm themselves.... The fight against proliferation must include self-discipline at our own borders."

### ***The Administration Reacts***

Unfortunately, the Administration has not always been forthcoming in assisting Congressional efforts to gain a better understanding of the national security implications of supercomputer exports. Earlier this year, Chairman Spence and Mr. Dellums requested that the Department of Energy (DOE) and Defense Intelligence Agency (DIA) conduct separate assessments of the risks to U.S. security resulting from previous exports of U.S. supercomputers. Until very recently, the Commerce Department, which maintains information on the capabilities of these supercomputers, refused to share this information with either DOE or DIA. In a letter to Commerce Secretary William Daley, Chairman Spence stated, "I

find the prospect that information is being denied to intelligence agencies that are attempting to determine the effect of illicit exports on U.S. national security highly disturbing.”

Nevertheless, in response to Congressional pressure, the Administration has taken some actions to make it easier for exporters to know when a license is required

for the sale of supercomputers. On June 30, 1997, the Commerce Department published a list in the Federal Register of 13 entities of proliferation concern in five countries (China, India, Israel, Pakistan, and Russia). Publication of this list came about as a result of the aforementioned unlicensed sale of supercomputers by Silicon Graphics, Inc. to Chelyabinsk-70. Silicon Graphics asserted that it was not told and did not

know of the weapons-related nature of the laboratory's work, and that the government had a responsibility to inform exporters of questionable end-users. In the wake of this sale, and the unlicensed transfer of an IBM supercomputer to another Russian nuclear weapons laboratory at Arzamas-16, pressure increased to publicize the names of these end-users.

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**I**n April 1997, in response to a growing body of published reports indicating that unauthorized diversions of supercomputers had taken place in Russia and China, Representatives Spence and Dellums commissioned a panel of outside experts to review the assumptions, methodologies, and conclusions of the Stanford University report that formed the basis for the Administration's October 1995 decontrol decision. Their report, delivered to the committee in July 1997, concluded that “the existing supercomputer control regime is inadequate for national security reasons.” (A copy of the report is available on the National Security Committee Website at <http://www.house.gov/nsc>.) It called for a Defense Intelligence Agency study of the military significance of supercomputer exports to sensitive destinations and enhanced capabilities to monitor and restrict supercomputer transfers, including more stringent licensing requirements.

On June 19, 1997, the House passed the Spence-Dellums supercomputer amendment to the FY 1998 National Defense Authorization Act by a vote of 332-88. The amendment required the prior written approval of the heads of five U.S. government agencies (Commerce, Defense, State, Energy, and ACDA) for the export or re-export of supercomputers with a computing capability of at least 2,000 MTOPS to countries of proliferation concern (so-called “Tier III” countries). The amendment did not require a formal export license for these supercomputers unless one of the above-named agencies withheld their approval of the proposed export.

On July 11, 1997, the Senate passed its version of the FY 1998 National Defense Authorization Act (S. 936). A floor amendment co-sponsored by Senators Cochran (R-MS) and Durbin (D-IL), which would have reinstituted a formal licensing requirement for the export or re-export of supercomputers of 2,000 MTOPS or more to Tier III countries, was rejected in favor of an amendment, co-sponsored by Senators Grams (R-MN) and Boxer (D-CA), that simply required a General Accounting Office (GAO) study of the national security risks of supercomputer exports to Tier III countries. This amendment was approved on July 10, 1997 by a vote of 72-27 after an intense industry lobbying

campaign and letters from the Secretary of Defense, the Secretary of Commerce, and the President's National Security Advisor.

The competing House and Senate actions were resolved in the conference report on the National Defense Authorization Act for Fiscal Year 1998 (*Public Law 105-85*). The compromise outcome retained the Senate requirement for a GAO study and the House requirement that the relevant government agencies be notified in advance of proposed supercomputer exports above 2,000 MTOPS to Tier III countries. The conference report also granted the President flexibility to adjust the MTOPS threshold 180 days after notifying Congress and to remove certain countries from the Tier III list 120 days after Congressional notification. It also retained the House requirement for post-shipment verifications of supercomputer exports to Tier III countries. The conference report passed the House on October 28, 1997 by a vote of 286-123. The Senate approved the report by a vote of 90-10 on November 6, 1997.

In a letter to Chairman Spence on October 20, 1997, Samuel Berger, Assistant to the President for National Security Affairs, criticized several supercomputer provisions at issue in the House-Senate conference. These included the language identifying Tier III countries, which he called “an unacceptable limit to the President's authority to conduct foreign policy.” In an October 28, 1997 letter, Franklin Raines, the Director of the Office of Management and Budget, wrote that “we strongly object” to the conference outcome on supercomputer exports, arguing that the final compromise “would limit the President's ability to adapt computer export controls to changing security needs... (and would) impose unrealistic Congressional notification, licensing, and post-shipment verification requirements.”

On November 18, 1997, President Clinton signed and enacted into law the National Defense Authorization Act for Fiscal Year 1998, containing the supercomputer export control provisions adopted by the House-Senate conference. However, the Administration continues to object to these provisions and ironically, the Department of Defense is seeking their repeal this year.



## Legislative Actions of the 105<sup>th</sup> Congress



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Prior to publication of the June 30 list, the Commerce Department had publicly identified only two entities — one in Israel and one in India — as end-users for which a license would be required prior to the export of U.S. supercomputers. Chelyabinsk-70 and Arzamas-16 are identified on the June 30 list as two entities of proliferation concern. Other known entities of proliferation concern — for example, the Chinese company that transferred ring magnets to Pakistan for use in that country's nuclear weapons program — are not even identified as such.

The Commerce Department has indicated that this published list of entities of proliferation concern is not all-inclusive and that publication of additional lists will be forthcoming. In a July 22, 1997 letter to Chairman Spence, President Clinton expressed his support for publication of end-users of proliferation concern. Critics

have expressed concerns that publication of the names of bad end-users may create more problems than it solves. Exporters may falsely believe that if an entity is not named on the list, then it is acceptable to export a supercomputer to that entity without seeking a license. Moreover, end-users of concern may operate under several aliases. In addition, publication of the names of end-users that require licenses may encourage named entities to create "front companies" for the specific purpose of acquiring supercomputers that might otherwise be prohibited. Finally, critics contend, the publication of any truly comprehensive list of bad end-users may compromise intelligence sources and methods.

In March 1997 the Commerce Department asked all U.S. supercomputer manufacturers to report supercomputer exports (2,000 MTOPS and up) they had made since January 25, 1996 to anywhere in the world. From this information, Commerce found that between January 1996 and March 1997, a total of 10 supercomputers were exported to Russia and 47 to China. In addition, 20 U.S. supercomputers were exported to Hong Kong (one of which was diverted to China and subsequently returned to the United States). A State Department spokesman confirmed in July 1997 that "diversions have taken place" and that such diversions are "against the rules, against our agreement and improper under international guidelines."

### Conclusion

The debate in Congress over the sale of U.S. supercomputers to other nations is likely to continue, and perhaps intensify, as technology advances. American industry looks for ways to solidify its competitive advantage, and the Administration moves toward a greater relaxation of export controls. Fundamentally, the issue comes down to American security and whether that security is best served by an export control process that seeks to limit the damage caused by the transfer of sensitive technologies to dangerous entities or accepts it as a *fait accompli*.

### From the Chairman...

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Atomic Energy revealed it during a press conference. Until the National Security Committee and others in Congress began asking questions, the Administration was unsure of how many supercomputers had been exported to China and apparently did not know that at least one had been diverted to a Chinese military institute. Given this pattern, I suspect that it will be years before we have a full appreciation of how many supercomputers may have been exported through loopholes in the Administration's relaxed export policy.

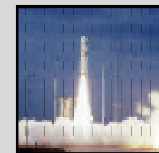
Striking a balance between protecting national security interests and promoting U.S. exports has always been a difficult task. Given the commanding share of the global information technology market that U.S. companies currently hold, we should not unnecessarily inhibit or damage American trade competitiveness. However, I am firmly convinced that a more appropriate balance must be struck in the name of national security.

## Military Applications of Supercomputers

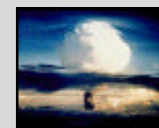
The following are just *some* of the many military applications of supercomputers:



designing highly-advanced, stealthy aircraft



designing ballistic missiles and guidance systems



designing and improving nuclear weapons



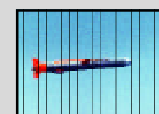
designing more deadly torpedo warheads



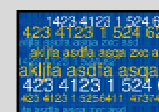
designing weapons-resistant bunkers and headquarters



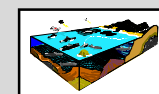
designing quieter, more efficient submarines



designing advanced supersonic missiles



unscrambling encrypted messages



complex battlefield simulations